



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/898,379

07/05/2001

George Kovar

10-342 US

3611

26381 7590 11/29/2005

LACASSE & ASSOCIATES, LLC
1725 DUKE STREET
SUITE 650
ALEXANDRIA, VA 22314

EXAMINER

TRAN, DZUNG D

ART UNIT

PAPER NUMBER

2638

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/898,379

Applicant(s)

KOVAR ET AL.

Examiner

Dzung D Tran

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 16 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Ito U.S. Patent no. 6,650,846.

Regarding claims 1, 16 and 19, Ito discloses in Figure 18, an optical transmitter for encoding data comprising:

means 2 for modifying a laser light beam to a pulse train at a first frequency (e.g., bit rate frequency sine wave 15);

a single data modulator (3) for encoding signal data on the pulse train at a second data stream frequency where the second frequency is equal to the first frequency (see Fig. 18);

polarization beam splitter (polarization modulator 4) for rotating a polarization state of at least alternate light pulses of the pulse train to provide a data stream of orthogonal polarized alternate light pulses (Figure 7a, 7b, 7c; col. 7, lines 11-16).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-15, 17, 18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito U.S. Patent no. 6,650,846 in view of Farries et al. US patent no. 6,607,313.

Regarding claim 2, Ito discloses all the limitations except for mean for modifying a laser light beam comprises a pulse generator for providing a pulse train of light pulses from a continuous wave laser beam. Farries discloses in Figure 2, a mode-locked laser 201 (same as CW laser and pulse generator to produce a pulse train. See specification page 2, paragraph 21).

At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the mode-locked laser taught by Farries in the system of Ito that is replace the modulator 2 with a mode-locked laser 201 of Farries. One of ordinary skill in the art would have been motivated to do this in order to generate a stream of light pulses with the predetermined pulse width.

Regarding claim 3, whether the pulse generator produces pulses at 500 MHz or 1 GHz or 40 GHz is obviously an engineer design choice. Furthermore, the 40GHz pulse generator is well known in the art (see Evan et al. US patent no. 6,449,408).

Regarding claims 4 and 12, Farries discloses in Figure 4, means 10 for rotating a polarization state including the polarization separator 15a for directing alternate light pulses to a first optical path (the path connected to half plate) and a second optical path (the path connected to glass) respectively (figure 4), one of the first optical path and the second optical path including a polarization rotator (e.g., half plate) for changing the polarization of light pulses passing therethrough, and means 14 for combining polarized light pulses from the first and second optical paths into a single data stream of alternate polarized light pulses.

Regarding claims 5 and 14, Ito further discloses means 11 of Figure 17 for directing alternate pulses to the first optical path and a second optical path is a driver electrically coupled to the pulse generator (2) for synchronizing the means for directing alternate pulses to the frequency of the pulse train.

Regarding claims 6 and 15, Farries discloses the modulator is a Mach-Zehnder modulator (col. 2, lines 6-7).

Regarding claim 7, Farries discloses in Fig. 4, the first output port and the second output port are optically coupled to a polarization beam combiner 14 through a half wave plate 16 optically coupled to one of the first output port and the second output port and through a spacer (col. 6, line 56) for providing an equal path length optically coupled to one of the first output port and the second output port.

Regarding claim 8, Ito discloses the means for rotating (4) a polarization state is disposed after the single data modulator (3) in a light propagating direction (figure 18).

Regarding claims 9, 10, 11 and 22, whether or not the second frequency is greater and equal to twice the frequency of the first frequency is merely an engineering design choices.

Regarding claim 13, Ito further discloses means (4 of Figure 18) for rotating a polarization state precedes the data modulator (3) in a light propagating direction.

Regarding claim 17, Farries further discloses means (10) for redirecting and focusing light from a first integrated device into a second integrated device on the same substrate.

Regarding claim 18, Farries further discloses means for redirecting and focusing light comprises a graded index lens GRIN lens 50a .

Regarding claim 20, Ito further discloses for passing pulses through a polarization rotator comprises passing alternate pulses, in dependence upon a clock synchronized with the pulse train through a polarization rotator (figure 19).

Regarding claim 21, Ito further discloses an output polarization signal comprise the interleaving alternate pulse from delay line 11 (same as polarization rotor) with alternate pulse which did not pass through the delay line 11 (same as polarization rotor).

Response to Arguments

5. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye, can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dzung Tran
09/27/2005